We claim:

1. A method of estimating a sequence of input data symbols of a CPFSK-modulated data signal, transmitted via a faulty channel, which comprises:

repeatedly executing an ACS operation and thereby calculating a transition metric value with reference to a transition from an output state at a time step n to a target state at a time step $n+1$, by

determining a first estimated value for a replacement symbol, occurring in a linear approximation of the CPFSK, with reference to an n-1th time step, and

taking the first estimated value into account in a calculation of the transition metric value.

2. The method according to claim 1, which comprises determining the first estimated value by using the first estimated value determined in a preceding time step.

3. The method according to claim 1, which comprises separately determining the first estimated value for each output state, specifically on a basis of decisions on input data symbols taken on the path ($P(Z_n^i)$) leading to the respective output state (Z_n^i).

4. The method according to claim 3, which comprises determining the first estimated value using the equation $\hat{a}_{n-1}^{(i)} = \hat{a}_{n-2}^{(i)} \exp\left\{j\pi\eta d_{n-1}^{P(Z_n^i)}\right\}$, whereby $\hat{a}_{n-1}^{(1)}$ and $\hat{a}_{n-2}^{(1)}$ are the first estimated values for the n-1th and n-2th replacement symbol, respectively, relating to the output state with index i, $d_{n-1}^{P(Z_n^i)}$ is an input data symbol, decided in the receiver, with reference to a path leading to the respective output state Z_n^i, and η denotes the modulation index.

5. The method according to claim 1, which comprises determining a second estimated value for a phase correction of a reconstructed signal value determined for calculating the transition metric value by using the first estimated value, and considering the second estimated value in calculating the transition metric value.

6. The method according to claim 5, which comprises separately determining a second estimated value for each output state, specifically on a basis of decisions on input data symbols taken on the path ($P(Z_n^1)$) leading to the respective output state (Z_n^1).

7. The method according to claim 5, wherein the step of determining the second estimated value comprises calculating a phase difference between a reconstructed signal value and a value of the received data symbol.

8. A device for estimating a sequence of input data symbols of a CPFSK-modulated data signal transmitted via a faulty channel, comprising:

a device configured to carry out ACS operations;

a calculating unit for calculating a transition metric value with reference to a transition from an output state at a time step n to a target state at a time step n+1, and

estimating means for determining a first estimated value for a replacement symbol, occurring in a linear approximation of a CPFSK, with reference to an n-1th time step, said estimating means being connected to said calculating unit for communicating the first estimated value to said calculating unit.

9. The device according to claim 8, wherein said estimating means is configured to carry out the determination of the first estimated value by using the first estimated value determined in a preceding time step.

10. The device according to claim 8, wherein

said estimating means comprises a multiplicity of calculating sections, and

each calculating section is configured to carry out a separate calculation of a first estimated value for the *n*-1th replacement symbol on the basis of decisions taken on input data symbols for a path ($P(Z_n^i)$) leading to the respective output state (Z_n^i) under consideration.

11. The device according to claim 10, wherein each said calculating section is configured to carry out the calculation of the first estimated value using the equation $\hat{a}_{n-1}^{(i)} = \hat{a}_{n-2}^{(i)} \exp\left\{j\pi\eta d_{n-1}^{P(Z_n^i)}\right\}$, where $\hat{a}_{n-1}^{(i)}$ and $\hat{a}_{n-2}^{(i)}$ respectively are the first estimated values for the *n*-1th and *n*-2th replacement symbols relating to the output state of index i, $d_{n-1}^{P(Z_n^i)}$ is an input data symbol decided in the receiver with reference to the path leading to the output state (Z_n^i) under consideration, and η denotes the modulation index.

12. The device according to claim 8, wherein said estimating means are first means and the device further comprises second means for determining a second estimated value for a phase correction of a reconstructed signal value determined for

calculating the transition metric value by using the first estimated value.

13. The device according to claim 12, wherein

said second means comprise a multiplicity of calculating sections; and

each calculating section is configured to carry out a separate calculation of a second estimated value for the n-1th replacement symbol on a basis of decisions taken on input data symbols for the path $(P(Z_n^i))$ leading to the respective output state (Z_n^i) under consideration.